

Principles of Horticultural Sciences

Course Description: This course introduces students to the vast areas of the horticulture industry. Topics include leadership, greenhouse management, garden center operations, floriculture, nursery operations, landscaping, and turf grass management. An introduction to plant and soil science is included as a necessary foundation to the success of today's horticulturalist.

Recommended Prerequisites: None

Recommended Credit: 1

Recommended Grade Level: 9th, 10, or 11th

Course Codes:** A10 – **5134** or A12 – **5184**

** Use A12 Course Code number for all programs. A10 should be used for 10 month programs only.

Principles of Horticultural Sciences

Standard 1.0

Specify and explain the various areas of the horticulture industry.

Standard 2.0

Access the role of the ornamental plant industry on society.

Standard 3.0

Evaluate and explain safety issues associated with the horticulture industry.

Standard 4.0

Describe and explain the characteristic and function of horticulture plants.

Standard 5.0

Identify the basic plant biology skills required for plant growth.

Standard 6.0

Explain the relationship between soil and artificial media.

Standard 7.0

Demonstrate premier leadership and personal growth needed in the area of horticulture.

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Standard 1.0

Specify and explain the various areas of the horticulture industry.

Learning Expectations and Performance Indicators:

- 1.1 Evaluate and explain the function of the types of greenhouses in use today.
- 1.2 Evaluate the importance of plant nursery operations in Tennessee.
- 1.3 Evaluate the types of garden centers and their importance to today's society.
- 1.4 Discuss the aesthetic and economic value of landscaping and turf management.
- 1.5 Describe and explain examples of the floriculture industry, including grower, wholesaler, and retailer.
- 1.6 Describe the importance of the fruit and vegetable production industry at the state, national and international levels.
- 1.7 Discuss the business aspect of the horticulture industry, including marketing and selling products and services.
- 1.8 Demonstrate the ability to keep records on SAE programs.

Standard 2.0

Access the role of the ornamental plant industry on society.

Learning Expectations and Performance Indicators:

- 2.1 Discuss the importance of horticulture plants.
- 2.2 Describe career areas of the horticulture industry.
- 2.3 Relate the history of plant domestication and production and impact on society.
- 2.4 Identify the current technology, including biotechnology, in the horticulture industry.

Standard 3.0

Evaluate and explain safety issues associated with the horticulture industry.

Learning Expectations and Performance Indicators:

- 3.1 Assess and justify various safety situations in horticulture work.
- 3.2 Evaluate and explain appropriate safety practices required in the horticulture industry.
- 3.3 Select and explain appropriate personal protective equipment for the job.
- 3.4 Demonstrate approved safety practices in a shop/lab environment.
- 3.5 Complete a safety test with 100 percent accuracy.

Standard 4.0

Describe and explain the characteristic and function of horticulture plants.

Learning Expectations and Performance Indicators:

- 4.1 Identify and explain the functions of floriculture plants.
- 4.2 Identify and explain the functions of nursery/landscape plants.
- 4.3 Identify and explain the functions of fruit and vegetable crop plants.

Standard 5.0

Identify the basic plant biology skills required for plant growth.

Learning Expectations and Performance Indicators:

- 5.1 Explain plant taxonomy and plant life cycle systems.
- 5.2 Identify and explain the parts, shape and functions of a plant cell.
- 5.3 Determine the relationship between cell growth and cell reproduction.
- 5.4 Describe the role of genetics in the agricultural industry.
- 5.5 Analyze the role of genes in determining hereditary characteristics.
- 5.6 Illustrate and explain the processes of photosynthesis and respiration.
- 5.7 Specify and explain the functions of the leaf, stem, and root parts of plants.
- 5.8 Distinguish between sexual and asexual reproduction of plants.
- 5.9 Explain the parts and functions of the reproduction system of plants.
- 5.10 Identify the parts of a seed and explain the functions of the parts.
- 5.11 Explain the conditions necessary for proper seed germination.
- 5.12 Demonstrate ability to reproduce plants from seed.
- 5.13 Identify the various methods of asexual plant propagation.
- 5.14 Demonstrate ability to reproduce plants asexually.

Standard 6.0

Explain the relationship between soil and artificial media.

Learning Expectations and Performance Indicators:

- 6.1 Describe the formation and importance of soil.
- 6.2 Determine soil texture and importance to plant growth.
- 6.3 Identify the essential elements for plant production.
- 6.4 Explain soil pH and identify ways of modifying pH.
- 6.5 Explain and evaluate the land classification system for agriculture.
- 6.6 Explain the qualities and list the components of artificial media.
- 6.7 Explain the relationship between water, soil media, and plants.
- 6.8 Specify and explain the relationship between soil and soil media mix for plant growth.
- 6.9 Prepare and utilize an artificial media for a crop.

Standard 7.0

Demonstrate premier leadership and personal growth needed in the area of horticulture.

Learning Expectations and Performance Indicators:

- 7.1 Demonstrate a positive work ethic and attitude.
- 7.2 Demonstrate proper time management skills.
- 7.3 Apply problem-solving skills.
- 7.4 Describe career plans that develop critical life-long thinking skills and allow for life long learning.
- 7.5 Demonstrate the ability to conduct a meeting in accordance with Robert's Rules of Order.